

Claims

- [c1] 1.A throw-in mat for use in a vehicle having a rubber-like fee comprising:
a primary backing layer having a first side and a second side;
a carpet pile sewn to said first side; and
a recyclable, thermoplastic backing material coupled to said second side.
- [c2] 2.The throw-in mat of claim 1, wherein the composition of said recyclable, thermoplastic backing material comprises an ethylene-octene copolymer.
- [c3] 3.The throw-in mat of claim 2, wherein said ethylene-octene copolymer is formed using a metallocene catalyst.
- [c4] 4.The throw-in mat of claim 2, wherein a portion of said ethylene-octene copolymer has a melt index of approximately 30.
- [c5] 5.The throw-in mat of claim 4, wherein a second portion of said ethylene-octene copolymer has a melt index of approximately 3.
- [c6] 6.The throw-in mat of claim 3, wherein said metallocene catalyst is selected from the group consisting of Exact, manufactured by Exxon, and Engage, manufactured by Du Pont Dow Elastomers.
- [c7] 7.A recyclable, thermoplastic backing material for use a throw-in mat comprising:
a first recyclable thermoplastic material having a melt index of approximately 25-35 and a density of approximately 0.7 to 1.0; and
a second recyclable thermoplastic material having a melt index of approximately 1-5 and a density of approximately 0.7 to 1.0.
- [c8] 8.The backing material of claim 7, wherein said first recyclable thermoplastic material comprises an ethylene-octene copolymer formed using a metallocene catalyst.
- [c9] 9.The backing material of claim 8, wherein said second recyclable thermoplastic material comprises an second ethylene-octene copolymer formed using said metallocene catalyst.

- [c10] 10.The backing material of claim 7, wherein said first recyclable thermoplastic material comprises a first ethylene-octene copolymer and wherein said second recyclable thermoplastic material comprises an second ethylene-octene copolymer, each of said first ethylene-octene copolymer and said second ethylene-octene copolymer formed using a metallocene catalyst.
- [c11] 11.The backing material of claim 7, wherein said metallocene catalyst is selected from the group consisting of Exact, manufactured by Exxon, and Engage, manufactured by Du Pont Dow Elastomers.
- [c12] 12.A method for forming a throw-in mat having a rubber-like feel and weight, the method comprising:
providing a carpet pile sewn through a first side of a primary backing layer;
forming a recyclable, thermoplastic backing material;
coupling said recyclable, thermoplastic backing material to a second side of said primary backing layer to form the throw in mat, said second side being opposite of said first side;
introducing the thrown-in mat to a mat press;
pressing the throw-in mat at a desired temperature and a desired pressure for a predetermined period of time within said mat press to form said recyclable, thermoplastic backing material to a desired shape;
removing said throw-in mat from said mat press; and
cooling said throw-in mat in a cold press.
- [c13] 13.The method of claim 12, wherein forming a thermoplastic backing material comprises:
introducing a plurality of raw materials to a mixing device, said plurality of raw materials including a recyclable, thermoplastic polymer; and
mixing said plurality of raw materials within said mixing device to form a recyclable, thermoplastic backing material.
- [c14] 14.The method of claim 12, wherein said recyclable, thermoplastic polymer comprises a first ethylene-octene copolymer formed using a metallocene catalyst and having a melt index of approximately 25-35 and a density of approximately 0.7 to 1.0.

- [c15] 15.The method of claim 14, wherein said recyclable, thermoplastic polymer further comprises a second ethylene–octene copolymer formed using said metallocene catalyst and having a melt index of approximately 2–4 and a density of approximately 0.7 to 1.0.
- [c16] 16.The method of claim 12, introducing a plurality of raw materials to a mixing device and mixing said plurality of raw materials comprises:
introducing a plurality of raw materials to a loss in weight feeder, said plurality of raw materials including a recyclable, thermoplastic polymer;
feeding said plurality of raw materials from said loss in weight feeder to a continuous mixer;
mixing said plurality of raw materials within said mixer to form a mixture;
introducing said mixture to an extruder;
extruding said mixture in said extruder to form an extruded material;
pelletizing said extruded material with an underwater pelletizer to form a plurality of pellets;
introducing at least one of said plurality of pellets to an extruder;
melting said at least one of said plurality of pellets to form a recyclable, thermoplastic backing material; and
forcing said recyclable, thermoplastic backing material out of a bottom of said extruder at a desired temperature.
- [c17] 17.The method of claim 16, wherein said desired temperature is between approximately 165 and 185 degrees Celsius.
- [c18] 18.The method of claim 12, wherein pressing the throw in mat comprises pressing the throw–in mat at a desired temperature and a desired pressure for a predetermined period of time within said mat press to form said recyclable, thermoplastic backing material to a desired shape;
wherein said desired temperature, said desired pressure, and said predetermined period of time are sufficient for said recyclable, thermoplastic backing material to flow within said extruder to form a desired shape.
- [c19] 19.The method of claim 12, wherein said desired temperature is between approximately 165 and 185 degrees Celsius and said predetermined period of

time is approximately 20 seconds.

[c20]

20.The method of claim 12, wherein said desired pressure is between 20 and 25 tons and said predetermined period of time is approximately 20 seconds.